

GCW, Gharaunda LESSON PLAN

CLASS - B.Sc & B.A VIth Semester

Name of Astit Prof - Ms. Anuradha

Paper - Real & Complex Analysis

Session - 2022-23

February

Week

Topic

1st week (1 to 4 feb.)

Jacobians

2nd Week (6 to 11 feb.)

Beta and Gamma functions

3rd Week (13 to 18 feb.)

Double & Triple Integrals

4th Week (20 to 25 feb.)
and 27 to 28 feb.

Dirichlet's Integrals, change of
order of integration in double
integrals

March

Week

Topic

1st week (1-5 March)

Fourier's Series

2nd Week (6-11 March)

Fourier expansions of piecewise
monotonic functions

3rd Week (13-18 March)

Properties of Fourier co-efficients

4th Week (20-25 March)

Dirichlet's conditions, Parseval's
identity for Fourier Series, Fourier
Series for even and odd functions

5th Week (27-31 March)

Half range Series, Change of
intervals

April

Week

Topic

1st week (1 April & 3-8 April)

Extended Complex plane, Stereographic projection of Complex numbers

2nd Week (10-15 April)

Continuity and differentiability of Complex functions

3rd Week (17-22 April)

Analytic functions, Cauchy-Riemann equations

4th Week (24-29 April)

Cauchy-Riemann equations, Harmonic functions

May

Week

Topic

1st Week (1-6 May)

Mappings by elementary functions :
Translation, Rotation

2nd Week (8-13 May)

Magnification and Inversion, Conformal Mappings

3rd Week (15-20 May)

Mobius transformations, fixed points

4th Week (22-27 May)

Cross ratio, Inverse points and
Critical mappings

& 29-31 May

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LESSON PLAN

Class - B.Sc & B.A Semester IVth

Name of Asst. Professor - Ms. ANURADHA

Paper - Sequences & Series

<u>February</u> Week	Topic
1st week (1-4 Feb)	Boundedness of the set of real numbers, least upper bound
2nd Week (6-11 Feb)	Greatest lower bound, neighbourhoods, interior points, isolated points
3rd Week (13-18 Feb)	Limit points, Open sets, closed set, interior of a set,
4th week (20-25 Feb) and 27-28 Feb	Closure of a set and their properties Bolzano - Weierstrass theorem. Open covers. Compact set and Heine Borel Theorem.

<u>March</u> Week	Topic
1st week (1-4 March)	Real sequences and their convergence, Theorems on limits of sequence
2nd Week (6-11 March)	Bounded and monotonic sequences, Cauchy's sequence, Cauchy general principle of convergence
3rd Week (13-18 March)	Subsequences, Subsequential limits, Convergence and divergence of infinite series, Comparison tests of positive terms infinite series
4th Week (20-25 March) and 5th Week (27-31 March)	Cauchy's general principle of Convergence of series, Convergence & divergence of geometric series, Hyper Harmonic series

April

Week

Topic

1st Week (1 & 3-8 April)

D'Alembert's Ratio test, Raabe's test, logarithmic test

2nd Week (10-15 April)

De Morgan and Bertrand's test, Cauchy's n^{th} root test, Gauss test

3rd Week (17-22 April)

Cauchy's integral test, Cauchy's Condensation test

4th Week (24-29 April)

Leibnitz's test, absolute and conditional convergence

May

Week

Topic

1st Week (1-6 May)

Abel's lemma, Abel's test, Dirichlet's test

2nd Week (8-13 May)

Insertion and removal of parenthesis, re-arrangement of terms in a series

3rd Week (15-20 May)

Dirichlet's theorem, Riemann's Re-arrangement theorem. Pringsheim's theorem (statement only), Multiplication of series

4th Week (22-27 May)

Definitions and examples of Cauchy product of series, Convergence and absolute convergence of infinite products.

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LESSON PLAN (Session 2022-23)

CLASS- B.Sc & BA IVth Sem.

Name of Asstt. Professor - Ms. Anuradha

Paper - Special functions & Integral transforms

February
Week

Topic

1st Week

Series solution of differential equations

2nd Week

Power series method

3rd Week

Definitions of Beta and Gamma functions,
Bessel equation and its solution

4th Week

Bessel functions and their properties, Convergence
of Bessel functions

March

Week

Topic

1st Week

Recurrence relations and generating functions,
Orthogonality of Bessel functions

2nd Week

Legendre and Hermite differential equations
and their solutions

3rd Week

Legendre and Hermite differential equations
and their solutions

4th Week

Legendre and Hermite differential equations
and their solutions

5th Week

Existence theorem for Laplace transforms, linearity
of the Laplace transforms

April

Week	Topic
1st Week	Shifting theorems, Laplace transforms of derivatives and integrals
2nd Week	Differentiation and integration of Laplace transforms, Convolution theorem, Inverse Laplace transforms
3rd Week	Convolution theorem, Inverse Laplace transforms of derivatives and integrals.
4th Week	Solution of ordinary differential equations using Laplace transform

May

Week	Topic
1st Week	Linear property, Shifting, Modulation of Fourier transforms
2nd Week	Convolution theorem, Fourier transform of derivatives, Relation between Fourier and Laplace transform
3rd Week	Parseval's identity for Fourier transforms, Solution of differential equations using Fourier transforms
4th Week	Solution of differential equations using Fourier transforms

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Name of Asstt. Prof - Ms. Anuradha

Paper - Ordinary Differential Equations

Session - 2022-23

February

Week	Topic
1st Week (1-4 feb.)	Geometrical meaning of a differential equation.
2nd Week (6-11 feb)	Exact differential equations, integrating factors
3rd Week (13-18 feb)	First Order higher degree equations solvable for x, y, p . Lagrange's equations
4th Week (20-25 feb) and 27 & 28 feb	Clairaut's equations, Equation reducible to Clairaut's form. Singular solutions.

March

Week	Topic
1st week (1-4 March)	Orthogonal trajectories in Cartesian co-ordinates and polar co-ordinates. Self orthogonal family of curves.
2nd Week (6-11 March)	Linear differential equations with constant Co-efficients.
3rd Week (13-18 March)	Homogeneous linear ordinary differential equations. Equation reducible to homogeneous
4th Week (20-25 March)	Equations reducible to homogeneous

March

Week

Topic

5th Week (27-31 March)

Linear differential equations of second order

April

Week

Topic

1st Week (1 & 3-8 April)

Linear differential equations of second order, Reduction to normal form

2nd Week (10-15 April)

Transformation of the equation by changing the dependent/independent variable.

3rd Week (17-22 April)

Solution by operators of non-homogeneous linear differential equations.

4th Week (24-29 April)

Reduction of order of a differential equation. Method of variation of parameters. Method of undetermined co-efficients

May

Week

Topic

1st week (1-6 May)

Ordinary simultaneous differential equations. Solution of simultaneous differential equations.

2nd week (8-13 May)

Total differential equations

3rd Week (15-20 May)

Total differential equations

4th Week (22-27 May)

Method of auxiliary equations

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LESSON PLAN

CLASS - B.Com 2nd Semester

Name of Asstt. Professor - Ms. Anuradha

Paper - Business Mathematics

February

Week

Topic

1st Week (1-4 Feb)

Graphical solution of linear inequalities in two variables, solution of system of linear inequalities in two variables

2nd Week (6-11 Feb)

Linear inequalities, formulation of equations, graphical method of solution

3rd Week (13-18 Feb)

Problems relating to two variables including the case of mixed constraints, Cases having no solution

4th Week (20-25 Feb)
and 27-28 Feb

Cases having multiple solution, unbounded solution and redundant constraints

March

Week

Topic

1st Week (1-4 March)

Data Representation and Interpretation: Introduction, classification of data

2nd Week (6-11 March)

Tabulation, diagrammatic and graphic representation of data

3rd Week (13-18 March)

Significance of diagrams and graphs, bar diagram, pie chart, pictographs

4th Week (20-25 March)

Graphs of time series or line graphs, graphs of frequency distribution

5th Week (27-31 March)

histogram, frequency polygon, ogives or cumulative frequency curves

April

Week

Topic

1st Week (1 + 3-8 April)

limitations of diagrams and graphs,
Permutations

2nd Week (10-15 April)

Permutations & Combinations

3rd Week (17-22 April)

Permutations & Combinations

4th Week (24-29 April)

Permutation & Combinations, Binomial
theorem

May

Week

Topic

1st Week (1-6 May)

Binomial theorem

2nd Week (8-13 May)

Binomial theorem

3rd Week (15-20 May)

Binomial theorem

4th Week (22-27 May)

Data Representation & Interpretation

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